

HYDRAULIC MACHINE ~~OF BOOSTING~~
~~AND RECOVERY OF THE LIQUID IN INTERNAL MOVEMENTS IN THE FOR~~
ELECTRIC ENERGY PRODUCTION

[0001] This application is a U.S. national phase of International Application No. PCT/BR2003/000196 filed December 15, 2003, which designated the U.S. and claims priority to PI 0300098-2 filed January 14, 2003 and PI 0304573-0 filed October 22, 2003, the entire contents of each of which are hereby incorporated by reference.

FIELD OF THE INVENTION

[0002] This ~~patent of invention refers to application~~ discloses a machine specially developed for production of electric power, ~~which~~ through the movement of one or more cylinders, located in a tank or column of water. ~~depending~~

SUMMARY OF THE INVENTION

[0003] Depending on the size of the machine, the cylinder(s) are embedded in one ~~sleeve~~ or more sleeves ~~exerts its movement~~ and the cylinders move upwards and downwards. Said sleeve and the cylinder are inside ~~the~~ a tank or water column ~~and inside it,~~ and they perform their movements inside the tank or water column. In the sleeve there is a ring that seals the exit of the water (or other liquids) from the tank to outside. ~~And The ring~~ also allows the transference of the liquid from the sleeve to ~~the~~ a first tank ~~number one~~. This ring, when leaned against the wall, allows the cylinder to be displaced from down to up ~~and,~~

which generates an empty space in the interior of its sleeve
that is where the cylinder once was. The empty space is
immediately occupied by ~~the~~ water (or ~~ether~~ another liquid)
~~through the opening of the plug or valve existent in the~~ from a
recovery box that ~~was used in the movement of the~~ recovers water
used to move a rotor. A plug in the bottom of the recovery box
controls the flow of water out of the recovery box. Note that
this box is higher than the level of the sleeve which ensures
that the water in the recovery box will flow into the sleeve and
cylinder, ~~where is the~~ to thus allow the internal invasion of
~~the water as a~~ result of the difference of level.

[0004] ~~Closed~~ Once the cylinder has been raised, the plug of
the water box is closed, and ~~opened~~ the ring is opened. ~~the~~ The
cylinder makes the inverse course, going downward, and exerts
the boosting of the water (or other liquids) through the opening
of the ring, ~~which makes possible to execute new movements in~~
~~high speed in the transference of~~ As a result, the liquid is
transferred from the sleeve to the a first tank ~~number one.~~ But,
~~everything becomes easy,~~ ~~the~~ The liquid transference is
~~immediate~~ fast and with little effort, as the cylinder and ~~the~~
~~chamber are~~ is inside the first tank ~~one liquid and occupy~~
occupies part of this space. ~~It should be highlighted here the~~
~~materials to be used in the strains to be executed through.~~ The
cylinder is moved upward and downward by a central axle that is
moved by a motor that may be electrical or of other type. ~~in~~ To
this axle are tied two steel cables, ~~with tying~~ which are
wrapped around the axle in opposite directions. ~~one~~ One of the
~~cable~~ cables holds the ~~central~~ cylinder of the machine. ~~the~~ The
other cable holds a weight outside the machine ~~and they form a~~
~~swing between the internal and the external weights,~~ ~~when~~ When
the cylinder cable goes up the cable of the external weight goes
down. When the external weight goes up the cylinder goes down.

These movements are well balanced, ~~and make the movement of the machine~~ which allows the cylinder to be moved with low energy consumption. ~~In the~~ The ring and ~~in the~~ plug or valve ~~it is used~~ can be actuated by pneumatic cylinders due to the need of speed in the production of great volume of liquid in movement. All these movements are duly commanded by sensors installed in several points of the machine.

BRIEF DESCRIPTION OF DRAWINGS

[0005] Figure 1 is a diagram showing a first embodiment of a hydraulic machine for generating electricity; and

[0006] Figure 2 is a diagram of a second embodiment of a hydraulic machine for generating electricity.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[0007] ~~The Figure (1) shows the machine as a whole, (1) in the tank or water column or other liquids this height varies according to the volume of the water that is required to rotate the rotor. Note that In some embodiments, the machine may be of very big dimensions. for such, it is necessary to use~~ The machine may include more than one cylinder, the tank may be one or more, depending on the necessity, (2) level pipe of and thus multiple tanks. As shown in Figure 1, a pipe 2 conveys the water from the recovery box 3 to the column. ~~when~~ When the cylinder 5 goes up, the water immediately invades the space left by the cylinder, (3). The recovery water box ~~that~~ 3 receives the ~~a~~ flow of the water after it has passed ~~movement in the~~ turbine rotor 27. and through its level it is possible to recover it and transmit it through the pipe to the cylinder sleeve, (4) cylinder sleeve, this sleeve ~~when~~ When the sealing ring 6 leans against it the cylinder sleeve 4, it eliminates the flowing of the water out of the interior of the tank to outside, and ~~allow us to make~~ allows the recovery of the liquid that was used in the ~~to power the turbine rotor through back to the empty~~ space left by the cylinder when it goes up, (5) cylinder ~~that goes up and down, when it~~. When the cylinder 5 goes up with the ring closed, it ~~allows the recovery of~~ draws the water (or of the other liquids) in from the recovery box 3. When it the cylinder 5 goes down with ring open, and the plug 10 closed, it discharges the liquid from the interior of the cylinder sleeve 4 to the interior of the mother-tank. ~~and so raises the water level and causes its falling on the rotor (6) the~~ This causes water to be discharged through the pipe 28 to the turbine rotor 27. The sealing ring of the cylinder sleeve ~~to the tank, when the cylinder is open it is opened when the cylinder 5 is ready to start its descent, when the cylinder~~. The sealing ring is

closed ~~it~~ when the cylinder 5 is ready to start its ascent, ~~(7)~~.
The ~~pneumatic cylinder, this cylinder has the~~ cylinders 7 and 8
have the function of opening and closing the sealing ring. ~~7~~
~~(8) pneumatic cylinder, this cylinder has the same function of~~
~~the cylinder seven, (9) The pneumatic cylinder, this cylinder 9~~
has the function of opening the plug or valve 10, depending on
what is possible to be faster in the sealing of the passing of
the water of the pipe recovery box, ~~(10)~~. The plug 10, that
makes the sealing of when closed, prevents the passing of the
water or other liquids, ~~(11)~~ from the cylinder sleeve 4 back
into the recovery box 3. The cylinder 4 also includes a left
side cylinder guide-stem 11, ~~(12)~~ and a right side cylinder
guide-stem, ~~(13)~~ 12.

[0008] The external weight that makes the balance 13 balances
between the weight of the internal cylinder 5. and the The
external weight, ~~(14)~~ pulley fixed to the axle with is attached
to a steel cable that sustains the external weight with inverted
tying, is wound around a pulley 14. when When the cylinder 5
goes down, the weight 14 goes up, ~~(15)~~. Another pulley 15 is
fastened to the central axle that through. an An electric motor
or other it is possible to spin or some other type of motor
spins the axle and impart imparts movements to the machine, ~~(16)~~
. In the embodiment shown in Figure 1, an electric motor that
through a belt is interconnected to the central axle 26 of the
machine and exerts the movement of the same, ~~(17)~~ via a belt, and
the motor 16 causes rotation of the central axis 26.

[0009] The machine also includes a motor supporting table 17,
~~(18)~~ and a supporting table of for the pneumatic cylinder 9 that
gives the movement to moves the plug, ~~(19)~~ stem of fixing of.
Stems 19 and 20 attach the machine to the pipe, ~~(20)~~ the machine
fixing stem has the same function of the nineteenth, ~~(21)~~ stem
of fixing of the pipe to the ground, ~~(22)~~ stem of fixing of the

~~mother pipe. Multiple stems 21, 22 and 23 attach the machine to the ground, (23) stem of holding of the pipe to the ground, (24) pulley fixed to the central axle where is tied~~

[0010] ~~a~~ A steel cable 25 that when put in movement exerts the function of making the cylinder go up and go down, (25) cable of tying of the pulley to the cylinder, (26) central axle of the machine where the cables is wound around a pulley 24 on the axle, and the cable is attached to the cylinder 5. The cables that are fastened to the pulleys ~~rotate~~ move in inverse directions when the axle 26 is rotated. , (27) turbine or rotor that through the beating of the water transfers Water from the tank, which passes through the pipe 28, moves the turbine 27, and the movement is transferred to the a generator. and in this manner makes possible the production of Thus, it is possible to produce electric energy. , (28) pipe of conduction of the water or other liquid to the turbine rotor, (29) sealing ring of the machine central cylinder, (31) it should be emphasized that the cylinder that goes up and down according to figure, a cylinder five that makes the up and down movement also can be made as the (Figure 2) will show us, also may be

[0011] An alternate embodiment of the machine is shown in Figure 2. In this embodiment, the element that moves up and down is constructed in form of an open glass, what facilitates very much, as long as its liquid topped cylindrical container. Liquid in the container is displaced by another, (32) cylinder 32 that remains stationary. that is stopped and with Upward movement of the cylinder in form of glass, from down to up is made the displacement of open topped cylindrical container 32 causes the liquid when the cylinder in glass penetrates in the cylinder that is stopped to be displaced. It should be emphasized that the position (33) of the pulleys 33 are fixed in the lateral sides of the cylinder in form of glass and not to

~~the center.~~

